TECHNICAL ADVISORY GROUP ISSUE SUMMARY
CONTROL LEVEL SUMMARY

Background

The overall mercury control level and schedule of the proposed rules is based on the ability of utilities to install controls on individual units at their plants. The reduction capability and availability of applicable control technologies is important, but other factors also bear on determining the extent that mercury emissions can be reduced and the appropriate schedule for achieving those reductions. Some of these factors include baseline determination methodology, accounting for growth, control system engineering, construction scheduling to insure electric reliability, and providing an adequate compliance margin. A primary concern of utilities is that a 90% mercury reduction requirement for their system translates into even higher reductions for each unit in the system. This summary addresses some of the factors that must be considered in setting a regulatory schedule and requirement for mercury emission reductions.

Key Points

- A percent reduction from a 1998 – 2000 baseline does not account for potential growth in utilization of an existing unit. Thus growth can require a higher percent reduction to meet the reduction levels in the proposed rules. For many utilities some growth is anticipated over the next 5-year period for their existing units. Beyond this time, growth and potential capacity replacement on existing units will most likely occur through installation of new units.

- Major installations of mercury control systems may take 2 to 3 years including design, obtaining permits and completion of construction. Installing a fabric filter system, wet scrubber, oxidizing bed, conversion of a hot side electrostatic precipitator to a cold side and significant ductwork reconfiguration are considered major installations.

- Coordinating major installations with the utilities major outage schedule will avoid additional outages that could impact electric reliability. Utilities schedule major unit outages that are several years apart with minor maintenance outages in between.

- The utilities typically plan to over comply with applicable emission limitations. That margin would increase as risk and uncertainty does.

- For technologies available within the next 5-years, fabric filter installations with AC injection are predicted to reach a 90% or greater mercury reduction level from fuel input. However, this level of performance has not been shown for all possible firing configurations. Additional full-scale testing is needed. Mercury oxidizing catalysts may also be available within the next 5-years. These catalysts may also achieve 90% or greater mercury reduction

- There are options becoming available that yield low to mid level reductions. It is estimated that a 10 to 15% mercury emission reduction can be obtained through fuel switching on a particular unit, although this is may be limited by fuel availability. Enhanced coal washing is another technique that may achieve a 50% to 60% mercury reduction. Options like this may allow consideration of a control system with a lower reduction capability than a fabric filter / AC injection system or oxidizing catalyst.

- Beyond 5 years there is an increased potential for alternatives to activated carbon adsorbents that may approach a 90% or greater reduction level.
- Another approach available to obtaining 90% or greater control from fuel input is total replacement of a unit with a natural gas unit, but this is limited by gas availability and costs. Also, newly installed coal gasification units equipped with an activated carbon bed for mercury control have been permitted to achieve up to 95% reduction in mercury emissions. More traditional new coal plants would require controls similar to those discussed for existing coal units.
- In evaluating overall program control levels and technologies it is important to understand the basis for comparing the reductions. Typically the technologies are evaluated based on the reduction from the fuel input which means a 90% reduction from the fuel input equals a 90% reduction in air emissions. Alternately, a 90% reduction of the air emissions of a unit already achieving a 10% reduction from the fuel will require an overall unit reduction of ~ 91% from the fuel input.